

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

Bruce A. Phillips

Application No.: 09/203,086

Filed: December 1, 1998

Title: SYSTEM AND METHOD FOR  
INCREASING DISTRIBUTION  
DISTANCE OF XDSL TYPE  
SIGNALS

Customer No.: 83809

Confirmation No. 3773

Examiner: Nguyen, Steven H D

Technology Center/Art Unit: 2665

PETITION UNDER 37 C.F.R. § 1.181(a)  
TO WITHDRAW HOLDING OF  
ABANDONMENT

**VIA EFS**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Dear Sir:

The applicants respectfully petition the Director to withdraw the holding of abandonment in this case. The facts of this case, to the knowledge of the undersigned, are as follows:

1. On December 30, 2002, the Office mailed a final Office Action (attached hereto as Exhibit A) rejecting all pending claims.
2. On January 27, 2003, the applicants filed an Amendment under 37 C.F.R. § 1.116 and Terminal Disclaimer (attached hereto together as Exhibit B) in response to the final Office Action.
3. On February 20, 2003 and April 17, 2003, the Office mailed Advisory Actions (attached hereto as Exhibits C and D, respectively) maintaining the rejections in the final Office Action.

4. On June 26, 2003, the applicants filed an Appeal Brief (attached hereto as Exhibit E) directed to the rejections in the final Office Action but did not file a corresponding Notice of Appeal.

5. On the same day, the applicants filed an Amendment Filed Together with Appeal Brief (attached hereto as Exhibit F) in an effort to place the claims in better condition for appeal.

6. On October 2, 2003, having received no reply to the final Office Action, the Office mailed a Notice of Abandonment (attached hereto as Exhibit G).

7. On October 16, 2003, the applicants filed a Petition for Revival of a Patent Application Abandoned Unintentionally Under 37 C.F.R. § 1.137(b) (attached hereto as Exhibit H), along with a Notice of Appeal (attached hereto as Exhibit I) appealing the final Office Action.

8. On April 7, 2005, the Office mailed a Decision on Petition (attached hereto as Exhibit J) granting the Petition for Revival. The Decision on Petition indicated that "[t]he file is being forwarded to Technology Center 2600 for processing the Notice of Appeal, filed October 16, 2003 (certificate of mailing date October 13, 2003) and Appeal Brief, filed July 14, 2003 (certificate of mailing date June 26, 2003)."

9. Thereafter, no action appears to have been taken by the Office with respect to this application. Accordingly, on May 19, 2007, the applicants filed a Status Inquiry (attached hereto as Exhibit K). No reply to the Status Inquiry was received from the Office. As of September 13, 2010, PAIR still indicates that this application has a status of "abandoned," and that no action has been taken since the Decision on Petition. *See* Exhibit L hereto (printout from PAIR website).

Thus, it is believed that, although the Office granted the Petition for Revival, the Office's records never were updated to reflect the application's status as pending (on appeal of the rejections in the final Office Action). Accordingly, the applicants respectfully request withdrawal of holding of abandonment and the mailing of the Examiner's answer to the Appeal Brief at the Examiner's earliest convenience. If it would

be helpful to obtain expedite examination of this case, the Examiner is encouraged to call and discuss this case with the undersigned.

Undersigned counsel believes, after reasonable investigation, that any delay in filing this Petition results from oversight, rather than any intent to delay prosecution.

Pursuant to MPEP § 711.03(c), no fees are believed due in connection with this Petition. Nonetheless, the undersigned hereby authorizes the charge of any fees created by the filing of this document or any deficiency of fees submitted herewith to be charged to deposit account No. 19-5117.

Respectfully submitted,

Date: 2010-09-13

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**EXHIBIT A**



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/203,086      | 12/01/1998  | BRUCE A. PHILLIPS    | 1554/1556(US)       | 3773             |

22193 7590 12/30/2002  
QWEST COMMUNICATIONS INTERNATIONAL INC  
LAW DEPT INTELLECTUAL PROPERTY GROUP  
1801 CALIFORNIA STREET, SUITE 3800  
DENVER, CO 80202

EXAMINER

NGUYEN, STEVEN H D

ART UNIT PAPER NUMBER

2665

DATE MAILED: 12/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/203,086

Applicant(s)

PHILLIPS ET AL.

Examiner

Steven HD Nguyen

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 135).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Response to Amendment***

1. The application states that a terminal disclaimer submitted in the last response. However, the office does not receive it. Please resubmit the terminal disclaimer.

### ***Claim Objections***

2. Claim 8 is objected to because of the following informalities: the recitation "the destination terminal" should be changed to -- the end user terminal --. Appropriate correction is required.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 3-7 and 9-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 6178179.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims 1, 3-7, 9-13 are encompassed claims 1-9 of the US patent 6178179 such as a

central office for transmitting a signal via XDSL transceiver and a translator “regenerator” including an encoder “line code translator”, decoder and line driver for transmitting a variable or fixed rate to the end user. However, Phillips does not disclose a translator is disposed at a predetermined distance from the central office wherein the SNR is reach a minimum threshold of quality signal (it is implicitly).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3-4, 7, 9-10 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mchale (USP 5905781) in view of Bardutz (USP 4766606) and Wu (USP 6219378).

Regarding claims 1, 3-4, 7, 9-10 and 13-14, McHale discloses a central office including a XDSL transceiver for transmitting a video, digital and telephone signals to the end users and receiving the data signals (Fig 4, Ref 160 is an XDSL modem at the central office of Fig 1, Ref 14) and a user has a XDSL transceiver (Fig 1, Ref 30 which includes ADSL and VDSL) for receiving a video signal (Video on demand) via twisted pair copper cable and transmitting data signals to the central office (See col. 6, lines 55-67) and an addition communication technology that extend the maximum length and quality of communication signal (Col. 7, lines 5-15). However, McHale does not discloses a regenerator which disposes between the central office and



the end user, having a transceiver, a decoder and encoder. In the same field of endeavor, Wu discloses a repeater which disposes between the central office and the end user for boosting the signal if the distance between the central office and end user is greater than a predetermined distance (See Fig 1 and col. 4, lines 25-60) and Bardutz discloses (Col 2, lines 45 to col. 4, lines 14) a repeater "regenerator" (Fig 1, Ref Rep 1) which disposes between the central office (Fig 1, Ref office terminal), includes a receiver for receiving a signal (col. 2, lines 51, coupling means), a decoder (col. 2, lines 55-60, data recovery means) for decoding the payload of a received signal into a base data, a encoder (Col. 2, lines 60-65) for encoding and repacking the base data into a desired protocol format and a line driver (Col. 2, lines 52-53, the regenerated signals is recoupled to the line) for retransmitting the encoded signals to the end user wherein the repeater is disposed at a predetermined distance where the SNR of the signal is reached to a threshold of minimum acceptable signal quality (it is implicitly).

Since, McHale suggests an addition communication technology that extend the maximum length and quality of communication signal (Col. 7, lines 5-15) and Wu suggests a repeater must be placed between the central office and the user if a distance between the central office and user is over a predetermined distance to boost the quality of signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a repeater between the central office and the end user as disclosed by Bardutz into Wu and McHale's telecommunication system. The motivation would have been to prevent a signal to be degraded and reduce cost.

7. Claims 2, 5-6, 8 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over McHale, Vu and Bardutz as applied to claims 1 and 7 above, and further in view of Fosmark (USP 6084881).

Regarding claims 2 and 8, McHale, Vu and Bardutz do not disclose a repeater for repackaging the base data into ATM protocol or a direct transmission protocol format depending on the protocol requirements of the destination terminal. However, Fosmark discloses a XDSL transceiver for selecting between a direct transmission protocol "Ref 72 and 66" and ATM protocol "Ref 66 and 70" to repackaging the base data for transmitting to the destination terminal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method of selecting between a direct transmission protocol "Ref 72 and 66" and ATM protocol "Ref 66 and 70" to repackaging the base data as disclosed by Fosmark into McHale's telecommunication system. The motivation would have been to prevent a signal to be degraded and reduce cost.

Regarding claims 5-6 and 11-12, McHale, Vu and Bardutz do not disclose the claimed invention. However, a transceiver for generating a fixed rate and variable rate is well-known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a transceiver for generating a fixed rate and variable rate into a McHale, Vu and Bardutz's telecommunication system. The motivation would have been to prevent a signal to be degraded and reduce cost.

***Response to Arguments***

8. Applicant's arguments filed 8/6/2002 have been fully considered but they are not persuasive.

In response to page 5, the applicant states that Wu does not disclose a repeater being located at a point on the twisted pair cable where the signal to noise ratio of transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. In reply, it is implicitly disclosed in Wu's reference because the distance between the central office and end user site has a limit such 18000 feet wherein the signal will be degraded, such as Signal to Noise ratio reaches a threshold of minimum acceptable signal quality, if the transmitted signal pass the limitation. Therefore, if a service provider would like to transmit a XDSL signal to a subscriber having a distance above 18000 feet, the service provider must place a repeater between the central office and the end user site.

In response to page 6 the applicant states that Bardutz does not disclose a repeater having a decoder (col. 2, lines 55-60, data recovery means for decoding the telephone protocol into base data) for decoding the payload of a received signal into a base data and an encoder (Col. 2, lines 60-65, the regenerating the base data into a protocol of telephone system for transmitting to user) for encoding and repacking the base data into a desired protocol format to the end user and including a transformer which will not work with a XDSL receiver. In reply, Bardutz discloses a repeater for receiving a transmitted signal and decoding the received signal into a base signal and encoding the base data into a desired protocol format for transmitting to the end user and including a transformer works with a XDSL receiver because McHale discloses in Figure 10

which includes a transformer for coupling to a XDSL receiver. Therefore, transformer can be interfaced with an XDSL receiver.

9. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

10. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Mchale discloses a method and apparatus for transmitting XDSL signal between provider and end user and suggests that an addition communication technology that extend the maximum length and quality of communication signal (Col. 7, lines 5-15) may be placed between provider and end user. Wu suggests that a repeater may be placed between the provider and end user in order to boot the signal in order to overcome the distance limitation (See col. 2, lines 32-51 and col. 4, lines 41-60). Bardutz discloses a repeater for receiving a transmitted signal such and decoding the received signal into a base signal and encoding the base data into a desired protocol format for transmitting to the end user (Fig 1, Office terminal receives four full duplex voice channel and multiplexing them into a single pair telephone line for transmitting to a repeater which decoding the received signal into a base signal and encoding the base data into a

desired protocol format for transmitting to the end user). Furthermore, Bardutz suggests that a repeater must be placed between the office terminal and end user if the distance between them is over maximum limit (See col. 7, lines 49 to col. 12). Therefore, it would have been one of ordinary skill in the art would have been apply a teaching of Bardutz such as decoding a received signal "telephone protocol" into base data and encoding the base data to the desired protocol "telephone protocol" to transmit to the user.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (703) 308-8848. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on (703) 308-6602. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

A handwritten signature in black ink, appearing to read 'Steven HD Nguyen', with a long horizontal line extending to the right.

Steven HD Nguyen  
Primary Examiner  
Art Unit 2665  
December 26, 2002

**EXHIBIT B**



Response Under 37 C.F.R. § 1.116 - 11  
Expedited Procedure - Examining Group 2665

AF/2700/11  
Response  
2/3/03  
ag

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

BRUCE A. PHILLIPS et al.

Group Art Unit: 2665

Examiner: S. Nguyen

Serial No.: 09/203,086

Filed: December 1, 1998

For: System and Method for Increasing Distribution Distance of XDSL Type Signals

Attorney Docket No.: 1554/1556 (USW0464PUS)

**AMENDMENT UNDER 37 C.F.R. § 1.116 RECEIVED**

FEB 05 2003

Box AF  
Commissioner for Patents  
United States Patent and Trademark Office  
Washington, D.C. 20231

Technology Center 2600

Sir:

Please accept the following remarks in response to the final Office Action mailed December 30, 2002:

**Remarks**

The Examiner rejected claims 1, 3-7 and 9-13 under the judicially created doctrine of obviousness-type double patenting over claims 1-9 of U.S. Patent No. 6,178,179. A terminal disclaimer has been filled together with this paper.

The Examiner rejected claims 1, 3, 4, 7, 9, 10, 13 and 14 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,905,781 to McHale *et al.* (McHale) in

**CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8**

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as first-class mail, postage pre-paid, in an envelope addressed to: Box AF, Commissioner for Patents, United States Patent and Trademark Office, Washington, D.C. 20231 on:

January 27, 2003  
Date of Deposit

Mark D. Chuev, Ph.D.  
Name of Person Signing

Signature



view of U.S. Patent No. 4,766,606 to Bardutz *et al.* (Bardutz) and U.S. Patent No. 6,219,387 to Wu (Wu). The Examiner rejected claims 2, 5, 6, 8, 11 and 12 under 35 U.S.C. § 103(a) over McHale, Bardutz, Wu and in further view of U.S. Patent No. 6,084,881 to Fosmark *et al.* (Fosmark). Applicants respectfully disagrees with the Examiner's § 103 rejections.

Independent claim 1 provides a system for distributing digital subscriber line (XDSL) signals to end users over a telephone wiring plant. A central office receives video signals from a video source. The central office includes a first XDSL transmission unit for transmitting the received video signals on twisted pair copper cable along with other telephony and digital data signals and for receiving data signals from end users. At least one end user location has a second XDSL transmission unit for receiving video signals from twisted pair copper cable and for transmitting data signals to the central office. A regenerator is connected to twisted pair copper cable and located a predetermined distance from the central office. The regenerator includes a receiver for receiving XDSL signals transmitted on twisted pair copper cable from either the central office or the end user. A decoder decodes the payload of a received XDSL signal into base data. An encoder repackages and encodes the base data into a desired protocol format. A line driver retransmits the encoded signal onto the twisted pair copper cable for distribution to an original destination. The predetermined distance for the location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Claims 2-6 depend from claim 1.

Independent claim 7 provides a method for distributing digital subscriber line (XDSL) signals to end users over a telephone wiring plant. Video signals from a video source are received at a central office. The received video signals are transmitted on a twisted pair copper cable along with other telephony and digital data signals as an XDSL type signal to a terminal located at an end user site. Data signals are received on the twisted pair copper cable at the central office from an end user terminal. A signal regenerator unit is coupled to the twisted pair copper cable at a distance from the central office corresponding to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Transmitted XDSL signals are received at the regenerator and decoded into base data. The base data is repackaged and encoded into an

XDSL signal having a desired protocol format. The XDSL signal is retransmitted to the end user terminal. Claims 8-12 depend from claim 7.

Independent claim 13 provides a regenerator for use in a digital subscriber line (XDSL) signal type signal distribution system. The distribution system includes a central office for transmitting video signals on a twisted pair copper cable along with other telephony and digital data signals to at least one end user location. The regenerator includes a receiver for receiving XDSL signals transmitted on the twisted pair copper cable from either the central office or the end user. A decoder decodes the payload of a received XDSL signal into base data. An encoder repackages and encodes the base data into a desired protocol format. A line driver for retransmits the encoded signal onto the twisted pair copper cable for distribution to an original destination. A predetermined distance for the location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Claim 14 depends from claim 13.

The Examiner has rejected independent claims 1, 7 and 13 as being obvious based on McHale, Bardutz and Wu. According to M.P.E.P. § 2142, three criteria must be met for the Examiner to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in McHale, Bardutz, Wu or in knowledge generally available to one of ordinary skill in the art, to modify McHale. Second, there must be a reasonable expectation that this modification will succeed. Finally, either McHale, Bardutz or Wu must teach or suggest all claim limitations.

Without addressing any motivation to combine, no combination of McHale, Bardutz and Wu teach each of Applicants' claim limitations. In addition, there is no reasonable expectation that the Examiner's combination of Bardutz into McHale or Wu will succeed.

The Examiner suggests that McHale teaches the basic structure of a central office with XDSL capabilities communicating with end users. The Examiner admits that "McHale does not disclose a regenerator which disposes between the central office and the end user." (Pp. 3-4.) To make up for this flaw, the Examiner first provides Wu, as follows:

In the same field of endeavor, Wu discloses a repeater which disposes between the central office and the end user for boosting the signal if the distance between the central office and end user

is greater than a predetermined distance (See Fig 1 and col. 4, lines 25-60) ...

The Examiner is misstating whatever is disclosed in Wu.

Wu's Figure 1 is a block diagram showing an internet service provider (ISP), central office (CO) and user environment (H). No regenerator or repeater of any kind is shown. The only mention of anything similar to Applicants' regenerator in the passage cited by the Examiner is at column 4, lines 55-60, as follows (emphasis added):

Alternatively, if user environment H is more than this specified distance [18,000 feet] from central office CO, one or more signal repeaters (not shown) may be included within twisted pair wire facility TWP to *boost the signals* along their respective paths, particularly from central office CO to user environment H.

First, this does not teach *anything* about how to make *any* repeater. Second, there is no reason to believe that the repeater suggested by Wu does anything more than simply amplify or "boost the signal." This is not Applicants' regenerator, which provides for receiving a signal, decoding the signal, repackaging and encoding into a desired protocol format, and sending the encoded signal. In fact, the suggestion to "boost the signal" teaches away from Applicants' regenerator.

In addition, Wu neither teaches nor suggests locating a regenerator at a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality.

In response to this argument, the Examiner asserts the following at page 6:

[T]he applicant states that Wu does not disclose a repeater being located at a point on the twisted pair cable where the signal to noise ratio of transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. In reply, it is implicitly disclosed in Wu's reference because the distance between the central office and end user site has a limit such [*sic*] 18000 feet wherein the signal will be degraded, such as Signal to Noise ratio reaches a threshold of minimum acceptable signal quality, if the signal pass the limitation. Therefore, if a service provider would like to transmit a XDSL signal to a subscriber having a distance above 18000 feet, the service provider must place a repeater between the central office and the end user site.

The Examiner appears to be saying that, since Wu discloses an approximate limit for transmitting ADSL or MDSL signals, Wu *inherently* discloses Applicants' regenerator "located a predetermined distance from the central office . . . the predetermined distance for the location of the repeater corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality." At best, Wu implies locating a repeater at a distance of 18,000 feet from the central office, a value not based in any manner on a signal-to-noise threshold but on the absolute failure of the system to operate at a greater distance. In view of the dearth of disclosure regarding Wu's repeater, the Examiner appears to be stating that since Wu suggests some use of a repeater, Wu implies that the repeater can be located in any manner whatsoever.

The last reference proposed by the Examiner is Bardutz. The Examiner's assertion regarding the disclosure in Bardutz is at page 4, reproduced as follows:

Bardutz discloses (Col 2, lines 45 to col. 4, lines 14) a repeater "regenerator" (Fig 1, Ref Rep 1) which disposes between the central office (Fig 1, Ref office terminal), includes a receiver for receiving a signal (col. 2, lines 51, coupling means), a decoder (col. 2, lines 55-60, data recovery means) for decoding the payload of a received signal into a base data, an encoder (Col. 2, lines 60-65) for encoding and repacking the base data into a desired protocol format and a line driver (Col. 2, lines 52-53, the regenerated signals is recoupled to the line) for retransmitting the encoded signals to the end user wherein the repeater is disposed at a predetermined distance where the SNR of the signal is reached to a threshold of minimum acceptable signal quality (it is implicitly).

Once again, the Examiner is misstating the reference.

Bardutz discloses a signal repeater that is part of a system which "provides four voice channels over a single pair telephone line." (Col. 5, ll. 54-55.) The repeater is described in column 6, lines 3-6, as follows:

The repeater of the present invention is used to regenerate digital pulses sent over the single pair telephone line which interconnects the central office and subscriber terminals.

Thus, it is clear the Bardutz's repeater works on base band data and not modulated data such as XDSL signals. Further evidence is provided at column 7, lines 8-48. Bardutz discloses converting analog voice signals from four sources into pulse signals, compressing the pulse

signals and interleaving, or time-division multiplexing, these signals for transmission over a single line. In contrast, as is well known in the art, XDSL signals use frequency-division multiplexing, or frequency modulation. This shifts the XDSL signals in the frequency spectrum allowing the XDSL signals and baseband voice signals to be transmitted *simultaneously* over the same line. Hence the need for a receiver in Applicants' system to demodulate or frequency shift the XDSL signals back to base band before these signals can be decoded to obtain the base data. Once this is understood, it becomes clear that Bardutz's repeater cannot function as Applicants' regenerator. Now, to address the Examiner's specific arguments.

The Examiner states "Bardutz discloses (Col 2, lines 45 to col. 4, lines 14) a repeater "regenerator" (Fig 1, Ref Rep 1) which disposes between the central office (Fig 1, Ref office terminal), *includes a receiver for receiving a signal* (col. 2, lines 51, coupling means) . . ." (Emphasis added.) There is no indication that Bardutz's "coupling means" is Applicants' XDSL receiver. As illustrated in Figure 3a, "an electronic circuit schematic diagram of the line coupling sub-section of the repeater transmitter subsection," Bardutz's coupling means is a transformer, which will not work as an XDSL receiver *or as a receiver for any other type of frequency modulated signal*. In response to this argument, the Examiner indicated that McHale disclosed the use of a transformer in an XDSL system. This may be true, but that is not what Applicants argue. Applicants do not argue that a transformer cannot be used in an XDSL system, but rather that such a transformer is not an XDSL receiver. A transformer cannot frequency shift or demodulate an XDSL signal, or any other kind of frequency modulated signal for that matter<sup>1</sup>.

Applicants point out that the Examiner's own construction requires Bardutz to disclose an XDSL receiver. Thus, in arguing that no such receiver is taught or suggested by Bardutz, Applicants are not "attacking references individually where the rejections are based on combinations of references" as suggested by the Examiner.

---

<sup>1</sup>If the Examiner believes otherwise, the Examiner is invited to connect an antenna to one side of a transformer and a set of headphones to the other. The airwaves are filled with frequency modulated signals, none of which will be reduced to audible form by the transformer.

The Examiner also asserts that Bardutz discloses "a encoder (Col. 2, lines 60-65) for encoding and repacking [*sic*] the base data into a desired protocol format." The section cited by the Examiner is reproduced as follows:

The repeater comprises . . . data conversion means for re-encoding the regenerated signals for recoupling thereof onto the line; and, signal processing means for controlling the operation of the signal coupling means, the clock recovery means, the data recovery means and the data conversion means.

Applicants' repackaging is described on page 7, lines 16-27, as follows:

Referring now to Figure 2, a flowchart illustrates the overall operation of the regeneration unit 32. As denoted at block 100, XDSL signals transmitted from either XTU<sub>co</sub> 18 or XTU<sub>cust</sub> are received by receivers 34 or 42. The received signal payload is subsequently decoded into a base data level at block 102, and temporarily stored in the appropriate buffer at block 104. At block 106, a decision is made as to whether the destination of the signal requires ATM layer processing. If so, the payload base data is retrieved from the buffer and reframed or repackaged with the appropriate ATM framing including the necessary loop timing at block 108. If ATM layer processing required, the payload base data is retrieved from the buffer and packaged for direct retransmission at block 110.

As denoted at block 112, once the payload has been repackaged, the signal is encoded for transmission.

Repackaging, according to the preferred embodiment, is ATM framing with appropriate loop timing. This is a separate and distinct operation from encoding. While Bardutz may suggest some form of encoding, Bardutz neither teaches nor suggests any kind of repackaging. This is probably because there is no need to perform such repackaging in Bardutz's simple time-division multiplexed system. Once again, the Examiner's own construction requires Bardutz to disclose such repackaging and in arguing that the Examiner's own construction fails to do so Applicants are not "attacking references individually where the rejections are based on combinations of references."

Finally, the Examiner states "the repeater is disposed at a predetermined distance where the SNR of the signal is reached to a threshold of minimum acceptable signal quality (it is implicitly)." There is no such implicit teaching in Bardutz. Bardutz describes where repeaters may be located in column 6, lines 8-18, as follows:

The repeater housings are normally mounted on telephone poles or pedestals co-located with an existing loading coil location along the cable route.

\* \* \* \*

Repeaters are normally required every 32 to 37 db. of line loss, which translates into approximately 3.5 miles if 19 gauge wire is used, 3.0 miles if 22 gauge is used and 2.5 miles if 24 gauge wire is used.

Thus, Bardutz discloses locating repeaters based on at least one of two conditions: where loading coils are located on telephone poles or pedestals and where a certain amount of signal loss is obtained. Neither of these teach or suggest locating regenerators based on a signal-to-noise threshold.

In addition to failing to find a teaching of each of Applicants' claim elements, there is no reason to believe that the Examiner's proposed construction will succeed. The Examiner proposes to inserting Bardutz's telephonic repeater into either McHale's or Wu's system to implement Applicants' invention. However, since Bardutz's repeater does not contain a receiver, there is no reason to believe that the Examiner's proposed construction will be operative.

Applicants believe the Examiner has failed to establish a *prima facie* case of obviousness with regards to independent claims 1, 7 and 13. Since each remaining claim depends from one of these claims, the dependent claims are also patentable.

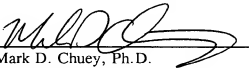
### **Conclusion**

Claims 1-14 are pending in this application. The case is in appropriate condition for allowance. Accordingly, such action is respectfully requested. No additional fee is believed due by filing this amendment. However, any additional fee may be charged to Deposit Account 21-0456 as specified in the Application Transmittal.

The Examiner is invited to telephone the undersigned to discuss any aspect of this case.

Respectfully submitted,

**BRUCE A. PHILLIPS et al.**

By 

Mark D. Chuey, Ph.D.

Reg. No. 42,415

Agent for Applicants

Date: January 27, 2003

**BROOKS & KUSHMAN P.C.**  
1000 Town Center, 22nd Floor  
Southfield, MI 48075  
Phone: 248-358-4400  
Fax: 248-358-3351



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#12

In re application of:

BRUCE A. PHILLIPS et al.

Serial No.: 09/203,086

Filed: December 1, 1998

For: System and Method for Increasing Distribution Distance of XDSL Type Signals

Attorney Docket No.: 1554/1556 (USW0464PUS)



Group Art Unit: 2665

Examiner: S. Nguyen

**TERMINAL DISCLAIMER**  
**UNDER 37 C.F.R. § 1.321(b)**

Commissioner for Patents  
United States Patent and Trademark Office  
Washington, D.C. 20231

Sir:

The undersigned is an Attorney of Record in the above-identified application.

Qwest Communications International Inc. (Assignee) is the owner of the entire right, title and interest in and to the invention claimed and disclosed in the above-identified application by virtue of assignment, recorded on November 26, 1999 at Reel 010421, Frame 0473 and recorded on July 24, 2000 at Reel 010814, Frame 0339.

Assignee hereby disclaims the terminal part of any patent granted on the above-identified application which would extend beyond the expiration date of the full statutory term as presently shortened by any terminal disclaimer of Patent No. 6,178,179, and Assignee hereby agrees that any patent so granted on the above-identified application shall be enforceable only for and during such period that the legal title to said patent shall be the same

**CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8**

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as first-class mail, postage pre-paid, in an envelope addressed to: Commissioner for Patents, United States Patent and Trademark Office, Washington, D.C. 20231 on:

January 27, 2003  
Date of Deposit

Mark D. Chuey, Ph.D.  
Name of Person Signing

  
Signature

02/04/2003 09:11 0000065 02378 09203086

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as the legal title to United States Patent No. 6,178,179. This agreement to run with any patent granted on the above-identified application and to be binding upon the Assignee, its successors and assigns.

Assignee does not disclaim any terminal part of any patent granted on the above-identified application prior to the expiration date of the full statutory term as presently shortened by any terminal disclaimer of Patent No. 6,178,179 in the event that it later: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid, is statutorily disclaimed in whole or terminally disclaimed under 37 C.F.R. § 1.321(a), has all claims canceled by a reexamination certificate, or is otherwise terminated prior to the expiration of its statutory term as presently shortened by any terminal disclaimer, except for the separation of legal title stated above.

Enclosed is a check in the amount of \$110 which represents the filing fee under 37 C.F.R. § 1.20(d) for this Terminal Disclaimer. The Commissioner is authorized to charge any additional fees, as well as credit any overpayments, to Deposit Account No. 02-3978. A duplicate of this request is enclosed for that purpose.

Respectfully submitted,

BRUCE A. PHILLIPS et al.

By: 

Registration No.  
Agent for Applicant

Date: January 27, 2003

**BROOKS & KUSHMAN P.C.**  
1000 Town Center, 22<sup>nd</sup> Floor  
Southfield, Michigan 48075  
Phone - (248) 358-4400  
Fax - (248) 358-3351

The PTO did not receive the  
listed item(s) a check for \$110.00

**EXHIBIT C**



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
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Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/203,086      | 12/01/1998  | BRUCE A. PHILLIPS    | 1554/1556/US        | 3773             |

22193 7590 02/20/2003

QWEST COMMUNICATIONS INTERNATIONAL INC  
LAW DEPT INTELLECTUAL PROPERTY GROUP  
1801 CALIFORNIA STREET, SUITE 3800  
DENVER, CO 80202

EXAMINER

NGUYEN, STEVEN H D

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 02/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

09/203,086

Applicant(s)

PHILLIPS ET AL.

Examiner

Steven HD Nguyen

Art Unit

2665

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 03 February 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.  
2. ☐ The proposed amendment(s) will not be entered because:  
(a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ they raise the issue of new matter (see Note below);  
(c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: \_\_\_\_\_.  
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.  
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:


Claim(s) allowed: \_\_\_\_\_

Claim(s) objected to: \_\_\_\_\_

Claim(s) rejected: 1-14

Claim(s) withdrawn from consideration: \_\_\_\_\_

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.  
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.  
10. ☒ Other: the applicant should correct the objection of claim 8

  
Steven HD Nguyen  
Primary Examiner  
Art Unit: 2665

**EXHIBIT D**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/203,086      | 12/01/1998  | BRUCE A. PHILLIPS    | 1554/1556(US        | 3773             |

22193 7590 04/17/2003

QWEST COMMUNICATIONS INTERNATIONAL INC  
LAW DEPT INTELLECTUAL PROPERTY GROUP  
1801 CALIFORNIA STREET, SUITE 3800  
DENVER, CO 80202

EXAMINER

NGUYEN, STEVEN H D

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2665

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action****Application No.**

09/203,086

**Applicant(s)**

PHILLIPS ET AL.

**Examiner**

Steven HD Nguyen

**Art Unit**

2665

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 26 June 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☒ The period for reply expires 6 months from the mailing date of the final rejection.  
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
**ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).**

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.  
2. ☒ The proposed amendment(s) will not be entered because:  
(a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ they raise the issue of new matter (see Note below);  
(c) ☒ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet.

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: \_\_\_\_\_.  
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.  
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☒ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: \_\_\_\_\_.

Claim(s) rejected: 1-14.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

8. ☐ The drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.  
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.  
10. ☐ Other: \_\_\_\_\_

Steven HD Nguyen  
Primary Examiner  
Art Unit: 2665



Continuation of 2. NOTE: the proposed amendment would not be entered because it does not place the case in the condition for allowance.

**EXHIBIT E**



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

BRUCE A. PHILLIPS et al.

Serial No.: 09/203,086

Filed: December 1, 1998

For: System and Method for Increasing Distribution Distance of XDSL Type Signals

Attorney Docket No.: 1554/1556 (USW0464PUS)

Group Art Unit: 2665

Examiner: S. Nguyen

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**APPEAL BRIEF**

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
U.S. Patent & Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This brief presents an appeal from the final rejection of claims 1-14 of the Office Action dated December 30, 2002. The application under consideration was filed on December 1, 1998.

**I. REAL PARTY IN INTEREST**

The real party in interest is Qwest Communications International Inc., a corporation organized and existing under the laws of the state of Delaware, and having a place of business at 1801 California Street, Suite 3800, Denver, Colorado 80202, as set forth in the assignment recorded in the U.S. Patent and Trademark Office on December 1, 1998, at Reel

**CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8**

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as first-class mail, postage pre-paid, in an envelope addressed to: Mail Stop Appeal Brief - Patents, Commissioner for Patents, U.S. Patent & Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450.

June 26, 2003  
Date of Deposit

Mark D. Chusey, Ph.D.  
Name of Person Signing

Signature

07/16/2003 RHEBRIGHT 00000097 09203086  
320.00 UP  
01 FC1402

9622/ Frame 0220; on November 26, 1999, at Reel 010421/Frame 0473; and on July 21, 2000, at Reel 10814/Frame 0339.

## **II. RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences known to appellant(s), the appellant's(s') legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

## **III. STATUS OF CLAIMS**

Claims 1-14 are pending in this application. Claims 1-14 have been rejected and are the subject of this appeal.

## **IV. STATUS OF AMENDMENTS**

An amendment after final rejection was filed on June 30, 2003, correcting an objection to claim 8 noted by the Examiner. It is not known whether or not this amendment has been accepted or denied entry. Claim 8 appears in the appended claims without this amendment.

## **V. SUMMARY OF THE INVENTION**

With regard to Figures 1 and 2, Appellants' invention includes regenerator 32 for use in a digital subscriber line (XDSL) distribution system 10. Distribution system 10 includes central office 18, also known as an XDSL transmission unit (XTU<sub>co</sub>), for transmitting video signals on a twisted pair copper cable 22 along with other telephony and digital data signals to at least one end user location 16 having XTO<sub>cust</sub> 28.

Telephony signals are base band signals. Base band signals have a two-sided power spectral density centered around a frequency of zero. Put another way, base band signals have a frequency range similar to, or the same as, the frequency range of a transducer generating the signals. In the case of a telephone signal, the frequency range is a subset of the

range of the human voice. In contrast, XDSL signals are broadband signals. Broadband signals are created by modulating a carrier signal with information. The result is that the information frequency spectrum is shifted up in frequency to above the carrier frequency. An advantage of XDSL is that the broadband XDSL signal spectrum and the base band telephony spectrum do not overlap, allowing both to be transmitted over twisted cable 22 simultaneously. This is generally known as frequency division multiplexing.

Regenerator 32 includes receiver 34, 44; decoder 36, 46; encoder 40, 50; and line driver 42, 52. Receiver 34, 44 receives XDSL signals transmitted on the twisted pair copper cable 22 from central office 18 or end user 28, respectively. Decoder 36, 46 decodes the payload of a received XDSL signal into base data. Encoder 40, 50 repackages and encodes the base data into a desired protocol format. Line driver 42, 52 retransmits the encoded signal onto twisted pair copper cable 22, 30 for distribution to an original destination.

As is well known in the art, a receiver demodulates a modulated signal. Thus, the result of receiver 34, 44 and decoder 36, 46 is to convert the broadband XDSL signal into base band, decoded data.

Regenerator unit 32 includes a receiver 34 for receiving signals from XTU<sub>18</sub>, a decoder 36 for analog-to-digital conversion and decoding of the payload of the received signal into base digital data, and a buffer 38 for temporarily storing the base data. Receiver 34 includes a suitable circuit for extracting the timing of the incoming signals when an ATM protocol is used.

Application Specification, pg. 6, ll. 22-26.

Encoder 40, 50 and line driver 42, 52, repackage, encode, and remodulate the base band data to produce a new XDSL signal.

An encoder 40 then reforms or repackages the data from buffer 38 into XDSL line signals, and a line driver retransmits the encoded signals onto the distribution line.

Application Specification, pg. 6, ll. 27-28.

Thus, Appellants' invention demodulates, decodes, repackages, encodes and remodulates XDSL signals.

Regenerator 32 is located a predetermined distance along twisted pair copper cable 22, 30 such that the signal-to-noise (S/N) ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality.

In accordance with the present invention, in order to extend the otherwise limited distribution range of XDSL encoded signals, a regenerator unit 32 is located at predetermined distances on the distribution line. The ATM layer transported on the distribution line will be repackaged and retransmitted at the regenerator to insure the data payload is valid. The predetermined location of a regenerator unit is calculated based on the effective loss of signal as a result of such factors as wire gauge, temperature, and distance, such that the regenerator unit will be located at a distance corresponding to a point where the calculated S/N ratio reaches a threshold of minimum acceptable signal quality. In an exemplary embodiment, the S/N ratio threshold is 18.5.

Patent Application, pg. 6, ll. 12-21.

## **VI. ISSUES**

The following prior art was cited by the Examiner in the final Office Action and is referenced in this Appeal Brief:

U.S. Patent No. 5,905,781 to McHale *et al.* (McHale);

U.S. Patent No. 4,766,606 to Bardutz *et al.* (Bardutz);

U.S. Patent No. 6,219,387 to Wu (Wu).

The only issue presented in this appeal, based on the Examiner's rejections in the final Office Action, is as follows:

**Whether claims 1-14 are obvious in view of McHale, Bardutz and Wu.**

## **VII. GROUPING OF CLAIMS**

Claims 1-14 are grouped to stand or fall together.

### **VIII. ARGUMENT**

Independent claims 1, 7 and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over McHale in view of Bardutz and Wu.

Independent claim 1 provides a system for distributing digital subscriber line (XDSL) signals to end users over a telephone wiring plant. A central office receives video signals from a video source. The central office includes a first XDSL transmission unit for transmitting the received video signals on twisted pair copper cable along with other telephony and digital data signals and for receiving data signals from end users. At least one end user location has a second XDSL transmission unit for receiving video signals from twisted pair copper cable and for transmitting data signals to the central office. A regenerator is connected to twisted pair copper cable and located a predetermined distance from the central office. The regenerator includes a receiver for receiving XDSL signals transmitted on twisted pair copper cable from either the central office or the end user. A decoder decodes the payload of a received XDSL signal into base data. An encoder repackages and encodes the base data into a desired protocol format. A line driver retransmits the encoded signal onto the twisted pair copper cable for distribution to an original destination. The predetermined distance for the location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Claims 2-6 depend from claim 1.

Independent claim 7 provides a method for distributing digital subscriber line (XDSL) signals to end users over a telephone wiring plant. Video signals from a video source are received at a central office. The received video signals are transmitted on a twisted pair copper cable along with other telephony and digital data signals as an XDSL type signal to a terminal located at an end user site. Data signals are received on the twisted pair copper cable at the central office from an end user terminal. A signal regenerator unit is coupled to the twisted pair copper cable at a distance from the central office corresponding to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Transmitted XDSL signals are received at the

regenerator and decoded into base data. The base data is repackaged and encoded into an XDSL signal having a desired protocol format. The XDSL signal is retransmitted to the end user terminal. Claims 8-12 depend from claim 7.

Independent claim 13 provides a regenerator for use in a digital subscriber line (XDSL) signal type signal distribution system. The distribution system includes a central office for transmitting video signals on a twisted pair copper cable along with other telephony and digital data signals to at least one end user location. The regenerator includes a receiver for receiving XDSL signals transmitted on the twisted pair copper cable from either the central office or the end user. A decoder decodes the payload of a received XDSL signal into base data. An encoder repackages and encodes the base data into a desired protocol format. A line driver for retransmits the encoded signal onto the twisted pair copper cable for distribution to an original destination. A predetermined distance for the location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. Claim 14 depends from claim 13.

According to M.P.E.P. § 2142, three criteria must be met for the Examiner to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in McHale, Bardutz, Wu or in knowledge generally available to one of ordinary skill in the art, to modify McHale. Second, there must be a reasonable expectation that this modification will succeed. Finally, either McHale, Bardutz or Wu must teach or suggest all claim limitations.

No combination of McHale, Bardutz and Wu teach each of Appellants' claim limitations. In addition, there is no reasonable expectation that the Examiner's combination of Bardutz into McHale or Wu will succeed.



1. **No Combination of McHale, Bardutz and/or Wu  
Disclose the Elements of Appellants' Regenerator**

The Examiner suggests that McHale teaches the basic structure of a central office with XDSL capabilities communicating with end users. The Examiner admits that "McHale does not disclose a regenerator which disposes between the central office and the end user." (Pp. 3-4.) The Examiner appears to propose either Wu or Bardutz as supplying Appellants' regenerator.

The Examiner first attempts to find a suggestion for Appellants' regenerator in Wu, providing the following argument:

In the same field of endeavor, Wu discloses a repeater which disposes between the central office and the end user for boosting the signal if the distance between the central office and end user is greater than a predetermined distance (See Fig 1 and col. 4, lines 25-60) ...

Wu's Figure 1 is a block diagram showing an Internet service provider (ISP), central office (CO) and user environment (H). No regenerator or repeater of any kind is shown. The only mention of anything remotely similar to Appellants' regenerator in the passage cited by the Examiner is at column 4, lines 55-60, as follows (emphasis added):

Alternatively, if user environment H is more than this specified distance [18,000 feet] from central office CO, one or more signal repeaters (not shown) may be included within twisted pair wire facility TWP to *boost the signals* along their respective paths, particularly from central office CO to user environment H.

Appellants note that the cited passage does not teach how to make *any* repeater, let alone Appellants' regenerator. More importantly, Appellants' regenerator does not "boost the signals" as suggested by Wu. Appellants' regenerator receives a broadband XDSL signal, decodes the signal to base band data, repackages and encodes the base band data into a desired protocol format, and retransmits the encoded signal by modulation back to broadband XDSL. In fact, the suggestion to "boost the signal" teaches away from Appellants' regenerator, which transmits a different XDSL signal than it receives.

The Examiner also asserts that Appellants' regenerator is disclosed by Bardutz. The Examiner's assertion regarding the disclosure in Bardutz is at page 4, reproduced as follows:

Bardutz discloses (Col 2, lines 45 to col. 4, lines 14) a repeater "regenerator" (Fig 1, Ref Rep 1) which disposes between the central office (Fig 1, Ref office terminal), includes a receiver for receiving a signal (col. 2, lines 51, coupling means), a decoder (col. 2, lines 55-60, data recovery means) for decoding the payload of a received signal into a base data, a encoder (Col. 2, lines 60-65) for encoding and repacking the base data into a desired protocol format and a line driver (Col. 2, lines 52-53, the regenerated signals is recoupled to the line) for retransmitting the encoded signals to the end user wherein the repeater is disposed at a predetermined distance where the SNR of the signal is reached to a threshold of minimum acceptable signal quality (it is implicitly).

The Examiner does not appear to understand the operation of Bardutz's repeater.

Bardutz discloses a signal repeater that is part of a system which "provides four voice channels over a single pair telephone line." (Col. 5, ll. 54-55.) The repeater is described in column 6, lines 3-6, as follows:

The repeater of the present invention is used to regenerate digital pulses sent over the single pair telephone line which interconnects the central office and subscriber terminals.

Bardutz's repeater works on base band data and not modulated data such as XDSL signals. Further evidence is provided at column 7, lines 8-48.

The central office terminal line card buffers and converts several samples of the voice frequency signals of each incoming central office line to PCM (pulse code modulated) signals, inserts the appropriate supervisory signaling bits, and then transmits them through the assigned channel in repetitive bursts at 768 kbits/second. The associated remote subscriber terminal also converts and buffers the voice frequency signal, together with its operational status, to PCM pulses, and then transmits them to the line card in an assigned time slot after the data from the line card is received. When the line card receives the

incoming PCM pulses, it converts them back to voice frequency signals and diverts them to the appropriate central office line. The operation outlined above is repeated in an endless loop.

All voice and signalling information is digitally multiplexed into a 768 kbit/second digital data stream, with full duplex operation achieved by time compression multiplexing (TCM). Packets of data are sent in each direction alternately (ping-pong technique), with the bit stream changing direction at a 667 cycle/second rate. The line bit format is modified duobinary; therefore, most of the energy is concentrated at a line frequency of 192 KHz.

The following table summarizes the system transmission characteristics.

|                          |                               |
|--------------------------|-------------------------------|
| Transmission scheme      | Time compression multiplexing |
| Coding Format            | Precoded modified duobinary   |
| Bit Rate                 | 768 Kb/s                      |
| Speech sampling rate     | 8 KHz                         |
| Companding law           | $\mu=255$                     |
| Voice code               | 8 bits per sample             |
| Duty cycle               | 100%                          |
| Transmit pulse amplitude | $\pm 3$ volts $\pm .5\%$      |
| Receive pulse amplitude  | $\pm 150$ mv minimum          |
| Line impedance           | 100 ohms balanced at 192 KHz  |

Bardutz discloses converting analog voice signals from four sources into pulse signals, compressing the pulse signals and interleaving, or time division multiplexing, these signals for transmission over a single line. In contrast, as is well known in the art, XDSL signals use frequency modulation to achieve frequency division multiplexing. Frequency modulation generates XDSL signals shifted in the frequency spectrum, allowing the XDSL signals and base band telephone voice signals to be transmitted *simultaneously* over the same line. Hence the need for a receiver in Appellants' system to demodulate or frequency shift the XDSL signals back to base band before these signals can be decoded to obtain the base data. Once this is understood, it becomes clear that Bardutz's repeater cannot function as Appellants' regenerator.

The Examiner states "Bardutz discloses (Col 2, lines 45 to col. 4, lines 14) a repeater "regenerator" (Fig 1, Ref Rep 1) which disposes between the central office (Fig 1, Ref office terminal), *includes a receiver for receiving a signal* (col. 2, lines 51, coupling means) . . ." (Emphasis added.) There is no indication that Bardutz's "coupling means" is Appellants' XDSL receiver. As illustrated in Figure 3a, "an electronic circuit schematic diagram of the line coupling sub-section of the repeater transmitter subsection," Bardutz's coupling means is a transformer, which will not work as an XDSL receiver *or as a receiver for any other type of frequency modulated signal*. In response to this argument, the Examiner indicated that McHale disclosed the use of a transformer in an XDSL system. This may be true, but that is not what Appellants argue. Appellants do not argue that a transformer cannot be used in an XDSL system, but rather that such a transformer is not an XDSL receiver. A transformer cannot frequency shift or demodulate an XDSL signal.

Appellants point out that the *Examiner's own construction* requires Bardutz to disclose an XDSL receiver. Thus, in arguing that no such receiver is taught or suggested by Bardutz, Appellants are not "attacking references individually where the rejections are based on combinations of references" as suggested by the Examiner.

The Examiner also asserts that Bardutz discloses "a encoder (Col. 2, lines 60-65) for encoding and repacking [*sic*] the base data into a desired protocol format." The section cited by the Examiner is reproduced as follows:

The repeater comprises . . . data conversion means for re-encoding the regenerated signals for recoupling thereof onto the line; and, signal processing means for controlling the operation of the signal coupling means, the clock recovery means, the data recovery means and the data conversion means.

An embodiment of Appellants' repackaging is described on page 7, lines 16-27, as follows:

Referring now to Figure 2, a flowchart illustrates the overall operation of the regeneration unit 32. As denoted at block 100, XDSL signals transmitted from either XTU<sub>∞</sub> 18 or XTU<sub>cust</sub> are received by receivers 34 or 42. The received signal payload is subsequently decoded into a base data level at block 102, and temporarily stored in the appropriate buffer at block

104. At block 106, a decision is made as to whether the destination of the signal requires ATM layer processing. If so, the payload base data is retrieved from the buffer and reframed or repackaged with the appropriate ATM framing including the necessary loop timing at block 108. If ATM layer processing required, the payload base data is retrieved from the buffer and packaged for direct retransmission at block 110.

As denoted at block 112, once the payload has been repackaged, the signal is encoded for transmission.

Repackaging, according to the preferred embodiment, is ATM framing with appropriate loop timing. This is a separate and distinct operation from encoding. While Bardutz may suggest some form of encoding, Bardutz neither teaches nor suggests any kind of repackaging, or packaging for that matter. This is probably because there is no need to perform such repackaging in Bardutz's simple time division multiplexed system.

Once again, the *Examiner's own construction* requires Bardutz to disclose such repackaging. In arguing that Bardutz fails to do so, Appellants are not "attacking references individually where the rejections are based on combinations of references" as asserted by the Examiner.

The Examiner has failed to find any teaching or suggestion, in any combination of McHale, Bardutz and Wu, for each of Appellants' regenerator limitations in claims 1, 7 and 13.

**2. No Combination of McHale, Bardutz and/or Wu Discloses Locating Appellants' Regenerator Where the S/N Ratio of a Transmitted XDSL Signal Reaches a Threshold of Minimum Acceptable Signal Quality**

Claim 1 provides "a regenerator connected to the twisted pair copper cable and located a predetermined distance from the central office ... wherein the predetermined distance for the location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality." Claim 7 provides "coupling a signal regenerator unit to the twisted pair copper cable at a distance from the central office corresponding to a point on the twisted pair

cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality.” Claim 13 provides “a predetermined distance for the location of the regenerator corresponds to a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality.” The Examiner asserts that Wu and Bardutz disclose Appellants’ regenerator location.

In response to Appellants’ assertion that Wu neither teaches nor suggests locating a regenerator at a point on the twisted pair cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality, the Examiner stated the following at page 6:

[T]he applicant states that Wu does not disclose a repeater being located at a point on the twisted pair cable where the signal to noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality. In reply, it is implicitly disclosed in Wu’s reference because the distance between the central office and end user site has a limit such [sic] 18000 feet wherein the signal will be degraded, such as Signal to Noise ratio reaches threshold of minimum acceptable signal quality, if the signal pass the limitation. Therefore, if a service provider would like to transmit a XDSL signal to a subscriber having a distance above 18000 feet, the service provider must place a repeater between the central office and the end user site.

The Examiner appears to be saying that, since Wu discloses an approximate limit for transmitting ADSL or MDSL signals, Wu *inherently* discloses Appellants’ regenerator location. Since there are many ways in which Wu’s repeater could be located, there is no inherent teaching of Appellants’ regenerator location. At best, Wu implies locating a signal boosting repeater at a distance of 18,000 feet from the central office, a value not based in any manner on a signal-to-noise threshold but on the absolute failure of the system to operate at a greater distance.

The Examiner also attempts to find Applicants’ regenerator location in Bardutz, stating “the repeater is disposed at a predetermined distance where the SNR of the signal is reached to a threshold of minimum acceptable signal quality (it is implicitly).” There is no

such implicit teaching in Bardutz. Bardutz describes where repeaters may be located in column 6, lines 8-18, as follows:

The repeater housings are normally mounted on telephone poles or pedestals co-located with an existing loading coil location along the cable route.

\* \* \* \*

Repeaters are normally required every 32 to 37 db. of line loss, which translates into approximately 3.5 miles if 19 gauge wire is used, 3.0 miles if 22 gauge is used and 2.5 miles if 24 gauge wire is used.

Bardutz discloses locating repeaters based on at least one of two conditions: where loading coils are located on telephone poles or pedestals and where a certain amount of signal loss is obtained. Neither of these teach or suggest Appellants' locating regenerators based on a signal-to-noise threshold.

Thus, the Examiner has failed to find any teaching or suggestion, in any combination of McHale, Wu or Bardutz, for Appellants' location of a regenerator corresponding to a point on twisted pair cable supplying the regenerator where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of minimum acceptable signal quality.

**3. The Examiner's Combination of McHale, Wu and Bardutz Will Not Succeed**

There is no reason to believe that the Examiner's proposed combination of McHale, Wu and Bardutz will succeed. The Examiner cites McHale as generally disclosing an XDSL network. The Examiner can point to no teaching or suggestion in McHale for any regenerator, repeater or anything of the kind. The Examiner provides Wu for suggesting a signal-boosting repeater located somewhere between a central office and a user environment. The Examiner points to no teaching or suggestion in Wu for any device, system or method for accomplishing this signal boosting. Finally, the Examiner cites Bardutz's repeater as disclosing Appellants' regenerator.

The only logical interpretation of the Examiner's construction is that the Examiner intends to insert Bardutz's repeater into McHale's XDSL system. However, since Bardutz's repeater operates on base band, time division multiplexed signals, and not modulated XDSL signals, the resulting combination will not produce Appellants' invention. Further, this combination will render McHale's system totally inoperative, since Bardutz's repeater will block any XDSL signal sent to it.

In conclusion, the Examiner has failed to establish a *prima facie* case that claims 1, 7 and 13 are obvious in view of any combination of McHale, Wu and Bardutz. Appellants therefore respectfully request that this application be passed to issuance.

The fee of \$320 as applicable under the provisions of 37 C.F.R. § 1.17(c) is enclosed. Please charge any additional fee or credit any overpayment in connection with this filing to our Deposit Account No. 02-3978. A duplicate of this notice is enclosed for this purpose.

Respectfully submitted,  
**BRUCE A. PHILLIPS et al.**

By: 

Mark D. Chuey, Ph.D.  
Registration No. 42,415  
Agent for Appellants

Date: June 26, 2003

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Enclosure - Appendix



**IX. APPENDIX - CLAIMS ON APPEAL**

- 1                   1.       A system for distributing digital subscriber line (XDSL) signals
- 2 to end users over a telephone wiring plant comprising:
- 3                   a central office for receiving video signals from a video source, the
- 4 central office including a first XDSL transmission unit for transmitting the received
- 5 video signals on a twisted pair copper cable along with other telephony and digital
- 6 data signals, and receiving data signals from end users;
- 7                   at least one end user location having a second XDSL transmission unit
- 8 for receiving video signals from the twisted pair copper cable and transmitting data
- 9 signals to the central office; and
- 10                  a regenerator connected to the twisted pair copper cable and located
- 11 a predetermined distance from the central office, the regenerator comprising:
- 12                  a receiver for receiving XDSL signals transmitted on the
- 13 twisted pair copper cable from either the central office or the end user;
- 14                  a decoder for decoding the payload of a received XDSL signal
- 15 into base data;
- 16                  an encoder for repackaging and encoding the base data into a
- 17 desired protocol format; and
- 18                  a line driver for retransmitting the encoded signal onto the
- 19 twisted pair copper cable for distribution to an original destination, wherein
- 20 the predetermined distance for the location of the regenerator corresponds to

21 a point on the twisted pair cable where the signal-to-noise ratio of a  
22 transmitted XDSL signal reaches a threshold of minimum acceptable signal  
23 quality.

1 2. The system of claim 1 wherein the central office transmits  
2 XDSL signal using an asynchronous transfer mode (ATM) protocol, and the  
3 regenerator encoder is arranged to selectively repackage the base data into either the  
4 ATM protocol format or a direct transmission protocol format depending on the  
5 protocol requirements of the original destination.

1 3. The system of claim 1 wherein the XDSL signals comprise  
2 very-high-rate digital subscriber line (VDSL) type signals.

1 4. The system of claim 1 wherein the XDSL signals comprise  
2 asynchronous digital subscriber line (ADSL) type signals.

1 5. The system of claim 1 wherein the line driver comprises a  
2 variable rate line driver.

1 6. The system of claim 1 wherein the line driver comprises a fixed  
2 rate line driver.

1                   7.     A method for distributing digital subscriber line (XDSL)  
2     signals to end users over a telephone wiring plant comprising:  
3                   receiving video signals at a central office from a video source;  
4                   transmitting the received video signals on a twisted pair copper cable  
5     along with other telephony and digital data signals as an XDSL type signal to a  
6     terminal located at an end user site, and receiving data signals on the twisted pair  
7     copper cable at the central office from an end user terminal;  
8                   coupling a signal regenerator unit to the twisted pair copper cable at  
9     a distance from the central office corresponding to a point on the twisted pair cable  
10    where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of  
11    minimum acceptable signal quality;  
12                  receiving transmitted XDSL signals at the regenerator, and decoding  
13    the received signals into base data;  
14                  repackaging and encoding the base data into an XDSL signal having  
15    a desired protocol format; and  
16                  retransmitting the XDSL signal to the end user terminal.

1                   8.     The method of claim 7 further comprising transmitting XDSL  
2     signals from the central office transmits using an asynchronous transfer mode (ATM)  
3     protocol, and selectively repackaging the base data into either the ATM protocol

1 format or a direct transmission protocol format depending on the protocol  
2 requirements of the destination original terminal.

1 9. The method of claim 7 further comprising transmitting the  
2 received video signals as very-high-rate digital subscriber line (VDSL) type signals.

1 10. The method of claim 7 further comprising transmitting the  
2 received video signals as asynchronous digital subscriber line (ADSL) type signals.

1 11. The method of claim 7 further comprising retransmitting the  
2 XDSL signals from the regenerator with a variable data rate.

1 12. The method of claim 7 further comprising retransmitting the  
2 XDSL signals from the regenerator with a fixed data rate.

1 13. A regenerator for use in a digital subscriber line (XDSL) signal  
2 type signal distribution system, the distribution system including a central office for  
3 transmitting video signals on a twisted pair copper cable along with other telephony  
4 and digital data signals to at least one end user location, the regenerator comprising:  
5 a receiver for receiving XDSL signals transmitted on the twisted pair  
6 copper cable from either the central office or the end user;

7 a decoder for decoding the payload of a received XDSL signal into  
8 base data;  
9 an encoder for repackaging and encoding the base data into a desired  
10 protocol format; and  
11 a line driver for retransmitting the encoded signal onto the twisted pair  
12 copper cable for distribution to an original destination, wherein a predetermined  
13 distance for the location of the regenerator corresponds to a point on the twisted pair  
14 cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold  
15 of minimum acceptable signal quality.

16 14. The regenerator of claim 13 wherein the receiver, decoder and  
17 encoder comprise a very-high-rate digital subscriber line (VDSL) type receiver,  
18 decoder and encoder.

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**EXHIBIT F**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

BRUCE A. PHILLIPS et al.

Group Art Unit: 2665

Examiner: S. Nguyen

Serial No.: 09/203,086

Filed: December 1, 1998

For: System and Method for Increasing Distribution Distance of  
XDSL Type Signals

Attorney Docket No.: 1554/1556 (USW0464PUS)

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JUL 17 2003

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**AMENDMENT FILED TOGETHER WITH APPEAL BRIEF**

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
U.S. Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Office Action mailed March 30, 2003, please amend the  
above-identified application as follows:

09/03/2003 HGORDON 00000001 210456 09203086  
01 FC:1253 930.00 DA

**CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8**

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as first-class mail, postage pre-paid, in an envelope addressed to: Mail Stop, Commissioner for Patents, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 on:

June 26, 2003  
Date of Deposit

Mark D. Chuev, Ph.D.  
Name of Person Signing

  
Signature

**Amendments to the Claims:**

Please amend claim 8 as indicated below.

- 1                   1. (previously amended) A system for distributing digital subscriber  
2 line (XDSL) signals to end users over a telephone wiring plant comprising:  
3                   a central office for receiving video signals from a video source, the  
4 central office including a first XDSL transmission unit for transmitting the received  
5 video signals on a twisted pair copper cable along with other telephony and digital  
6 data signals, and receiving data signals from end users;  
7                   at least one end user location having a second XDSL transmission unit  
8 for receiving video signals from the twisted pair copper cable and transmitting data  
9 signals to the central office; and  
10                  a regenerator connected to the twisted pair copper cable and located  
11 a predetermined distance from the central office, the regenerator comprising:  
12                  a receiver for receiving XDSL signals transmitted on the  
13 twisted pair copper cable from either the central office or the end user;  
14                  a decoder for decoding the payload of a received XDSL signal  
15 into base data;  
16                  an encoder for repackaging and encoding the base data into a  
17 desired protocol format; and  
18                  a line driver for retransmitting the encoded signal onto the  
19 twisted pair copper cable for distribution to an original destination, wherein  
20 the predetermined distance for the location of the regenerator corresponds to  
21 a point on the twisted pair cable where the signal-to-noise ratio of a  
22 transmitted XDSL signal reaches a threshold of minimum acceptable signal  
23 quality.
- 1                   2. (previously amended) The system of claim 1 wherein the central  
2 office transmits XDSL signal using an asynchronous transfer mode (ATM) protocol,  
3 and the regenerator encoder is arranged to selectively repack the base data into



4 either the ATM protocol format or a direct transmission protocol format depending  
5 on the protocol requirements of the original destination.

1 3. (original) The system of claim 1 wherein the XDSL signals  
2 comprise very-high-rate digital subscriber line (VDSL) type signals.

4. (original) The system of claim 1 wherein the XDSL signals  
comprise asynchronous digital subscriber line (ADSL) type signals.

1 5. (original) The system of claim 1 wherein the line driver comprises  
2 a variable rate line driver.

1 6. (original) The system of claim 1 wherein the line driver comprises  
2 a fixed rate line driver.

1 7. (previously amended) A method for distributing digital subscriber  
2 line (XDSL) signals to end users over a telephone wiring plant comprising:  
3 receiving video signals at a central office from a video source;  
4 transmitting the received video signals on a twisted pair copper cable  
5 along with other telephony and digital data signals as an XDSL type signal to a  
6 terminal located at an end user site, and receiving data signals on the twisted pair  
7 copper cable at the central office from an end user terminal;  
8 coupling a signal regenerator unit to the twisted pair copper cable at  
9 a distance from the central office corresponding to a point on the twisted pair cable  
10 where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold of  
11 minimum acceptable signal quality;  
12 receiving transmitted XDSL signals at the regenerator, and decoding  
13 the received signals into base data;  
14 repackaging and encoding the base data into an XDSL signal having  
15 a desired protocol format; and  
16 retransmitting the XDSL signal to the end user terminal.

1                   8. (currently amended) The method of claim 7 further comprising  
2 transmitting XDSL signals from the central office transmits using an asynchronous  
3 transfer mode (ATM) protocol, and selectively repackaging the base data into either  
4 the ATM protocol format or a direct transmission protocol format depending on the  
5 protocol requirements of the end user ~~destination~~ ~~original~~ terminal.

1                   9. (original) The method of claim 7 further comprising transmitting  
2 the received video signals as very-high-rate digital subscriber line (VDSL) type  
3 signals.

1                   10. (original) The method of claim 7 further comprising transmitting  
2 the received video signals as asynchronous digital subscriber line (ADSL) type  
3 signals.

1                   11. (original) The method of claim 7 further comprising retransmitting  
2 the XDSL signals from the regenerator with a variable data rate.

1                   12. (original) The method of claim 7 further comprising retransmitting  
2 the XDSL signals from the regenerator with a fixed data rate.

1                   13. (previously amended) A regenerator for use in a digital subscriber  
2 line (XDSL) signal type signal distribution system, the distribution system including  
3 a central office for transmitting video signals on a twisted pair copper cable along with  
4 other telephony and digital data signals to at least one end user location, the  
5 regenerator comprising:

6                   a receiver for receiving XDSL signals transmitted on the twisted pair  
7 copper cable from either the central office or the end user;

8                   a decoder for decoding the payload of a received XDSL signal into  
9 base data;

10                   an encoder for repackaging and encoding the base data into a desired  
11 protocol format; and  
12                   a line driver for retransmitting the encoded signal onto the twisted pair  
13 copper cable for distribution to an original destination, wherein a predetermined  
14 distance for the location of the regenerator corresponds to a point on the twisted pair  
15 cable where the signal-to-noise ratio of a transmitted XDSL signal reaches a threshold  
16 of minimum acceptable signal quality.

17                   14. (original) The regenerator of claim 13 wherein the receiver,  
18 decoder and encoder comprise a very-high-rate digital subscriber line (VDSL) type  
19 receiver, decoder and encoder.

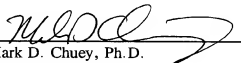
**Remarks**

In the final Office Action dated December 30, 2002, the Examiner objected to claim 8 as containing an informality. Appellants request that the amendment to claim 8, as suggested by the Examiner, be entered to place this application in better condition for appeal. No fee is believed due by filing this amendment. However, any fee due may be withdrawn from Deposit Account No. 21-0456 as specified in the original application transmittal.

Respectfully submitted,

**BRUCE A. PHILLIPS et al.**

By



Mark D. Chuey, Ph.D.

Reg. No. 42,415

Attorney/Agent for Applicant

Date: June 26, 2003

**BROOKS & KUSHMAN P.C.**  
1000 Town Center, 22nd Floor  
Southfield, MI 48075  
Phone: 248-358-4400  
Fax: 248-358-3351

**EXHIBIT G**



## UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/203,086   | 12/01/1998  | BRUCE A. PHILLIPS    | 1554/1556(US)       | 3773             |
| 22193  | 7590        | 10/02/2003           |                     |                  |
| QWEST COMMUNICATIONS INTERNATIONAL INC<br>LAW DEPT INTELLECTUAL PROPERTY GROUP<br>1801 CALIFORNIA STREET, SUITE 3800<br>DENVER, CO 80202 |             |                      |                     |                  |
| EXAMINER<br>NGUYEN, STEVEN H D   |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
| 2665   |             | 74                   |                     |                  |

DATE MAILED: 10/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Notice of Abandonment**

Application No.

09/203,086

Examiner

Steven HD Nguyen

Applicant(s)

PHILLIPS ET AL.

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 12/30/02.
- (a) ☐ A reply was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply (including a total extension of time of \_\_\_\_\_ month(s)) which expired on \_\_\_\_\_.
- (b) ☒ A proposed reply was received on 6/26/2003, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection.
- (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.)
- (c) ☐ A reply was received on \_\_\_\_\_ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
- (d) ☐ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
- (a) ☐ The issue fee and publication fee, if applicable, was received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
- (b) ☐ The submitted fee of \$\_\_\_\_\_ is insufficient. A balance of \$\_\_\_\_\_ is due.
- The issue fee required by 37 CFR 1.18 is \$\_\_\_\_\_. The publication fee, if required by 37 CFR 1.18(d), is \$\_\_\_\_\_.
- (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
- (a) ☐ Proposed corrected drawings were received on \_\_\_\_\_ (with a Certificate of Mailing or Transmission dated \_\_\_\_\_), which is after the expiration of the period for reply.
- (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
6. ☐ The decision by the Board of Patent Appeals and Interference rendered on \_\_\_\_\_ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The reason(s) below:



Steven HD Nguyen  
Primary Examiner  
Art Unit: 2665

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

**EXHIBIT H**



U.S. PATENT & TRADEMARK OFFICE  
OCT 16 2003

DAC#  
#15

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

BRUCE A. PHILLIPS et al.

Serial No.: 09/203,086

Filed: December 1, 1998

For: System and Method for Increasing Distribution Distance of XDSL Type Signals

Attorney Docket No.: 1554/1556 (USW0464PUS)

Group Art Unit: 2665

Examiner: S. Nguyen

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OFFICE OF PETITIONS

**PETITION FOR REVIVAL OF A PATENT APPLICATION  
ABANDONED UNINTENTIONALLY UNDER 37 C.F.R. § 1.137(h)**

Mail Stop Petition  
Commissioner for Patents  
U.S. Patent & Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The above-identified application became abandoned for failure to file a timely and proper response to the Office Action mailed on December 30, 2002, which set a three month period for response. The abandonment date of this application is June 30, 2003 (i.e., the day after the expiration date of the period set for response plus any extensions of time obtained therefor).

**APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION**

1. Petition fee

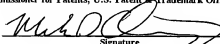
- ☐ Small entity - fee \$ \_\_\_\_\_ (37 C.F.R. § 1.17(m))  
☐ Small entity statement enclosed herewith.  
☐ Small entity statement previously filed.  
☒ Other than small entity - fee \$1,330 37 C.F.R. § 1.17(m))

**CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8**

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as first-class mail, postage pre-paid, in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, U.S. Patent & Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 on:

October 13, 2003  
Date of Deposit

Mark D. Chuey  
Name of Person Signing

  
Signature

10/17/2003 HUIN61 00000029 09503086 1330.00 00  
01 FC:1453

2. Proposed response and/or fee

- A. The proposed response and/or fee to the above-noted Office Action in the form of a Notice of Appeal and fee of \$330 under 37 C.F.R. § 1.17(b):

\_\_\_ has been filed previously on \_\_\_

X is enclosed herewith.

- B. The issue fee of \$ \_\_\_

\_\_\_ has been paid previously on \_\_\_

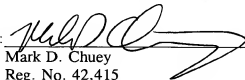
\_\_\_ is enclosed herewith.

3. Statement

The entire delay in filing the required response until the filing of this petition was unintentional. The undersigned filed an Appeal Brief within the statutory period, but failed to file a Notice of Appeal.

Respectfully submitted,

**BRUCE A. PHILLIPS et al.**

By:   
Mark D. Chuey  
Reg. No. 42,415  
Agent for Applicant

Date: October 13, 2003

**BROOKS KUSHMAN P.C.**  
1000 Town Center, 22<sup>nd</sup> Floor  
Southfield, MI 48075-1238  
Phone: (248) 358-4400  
Fax: (248) 358-3351

Enclosures: X Response  
X Fee Payment  
\_\_\_ Small Entity Status Form  
\_\_\_ Terminal Disclaimer  
X Other Notice of Appeal

**EXHIBIT I**



THE UNITED STATES PATENT AND TRADEMARK OFFICE

#16  
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In re application of:

BRUCE A. PHILLIPS et al.

Group Art Unit: 2665

Serial No.: 09/203,086

Examiner: S. Nguyen

Filed: December 1, 1998

For: System and Method for Increasing Distribution Distance of XDSL Type Signals

Attorney Docket No.: 1554/1556 (USW0464PUS)

**NOTICE OF APPEAL**

Mail Stop AF  
Commissioner for Patents  
U.S. Patent & Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the Examiner in a final Office Action dated December 30, 2002, in the above-identified patent application.

The appeal fee of \$330 as applicable under the provisions of 37 C.F.R. § 1.17(b) is enclosed. Please charge any additional fee or credit any overpayment in connection with this filing to our Deposit Account No. 02-3978. A duplicate of this notice is

**CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8**

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as first-class mail, postage pre-paid, in an envelope addressed to: Mail Stop AF, Commissioner for Patents, U.S. Patent & Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 on:

October 13, 2003  
Date of Deposit

Mark D. Chuey  
Name of Person Signing

  
Signature

10/17/2003 HKU061 00000029 09203086

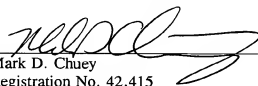
330.00 DP

02 FC:1401

enclosed for this purpose.

Respectfully submitted,

**BRUCE A. PHILLIPS et al.**

By:   
Mark D. Chuey  
Registration No. 42,415  
Agent for Applicant

Date: October 13, 2003

**BROOKS KUSHMAN P.C.**  
1000 Town Center, 22nd Floor  
Southfield, MI 48075-1238  
Phone: 248-358-4400  
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**EXHIBIT J**



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QWEST COMMUNICATIONS INTERNATIONAL INC  
LAW DEPT INTELLECTUAL PROPERTY GROUP  
1801 CALIFORNIA STREET, SUITE 3800  
DENVER CO 80202

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**OFFICE OF PETITIONS**

In re Application of :  
Phillips : DECISION  
Application No. 09/203,086 : ON PETITION  
Filed: December 1, 1998 :  
Attorney Docket No. 1554/1556 (USW0464PUS) :  
For: SYSTEM AND METHOD FOR  
INCREASING DISTRIBUTION DISTANCE OF  
XDSL TYPE SIGNALS

This is a decision on the petition under 37 CFR 1.137(b), filed October 16, 2003 (certificate of mailing date October 13, 2003), to revive the above-identified application.

The petition is **granted**.

This application became abandoned for failure to properly reply to the final Office action mailed December 30, 2003, which set a three month extendable period for response. The amendments after final mailed on February 3, 2003 and June 26, 2003, respectively, failed to place the application in *prima facie* condition for allowance. The application became abandoned on July 1, 2003, which is the day after the expiration of the period set for response plus the purchased three month extension of time. A Notice of Abandonment was mailed on October 2, 2003.

The Notice of Appeal, filed October 16, 2003 (certificate of mailing date October 13, 2003), has been entered and made of record. Petitioner filed an appeal brief on July 14, 2003 (certificate of mailing date June 26, 2003). If petitioner wishes to supplement the brief, petitioner should do so.

The application file does not indicate a change of address has been filed in this case, although the address given on the petition differs from the address of record. A change of address should be filed in this case in accordance with MPEP 601.03. A courtesy copy of this decision is being mailed to the address noted on the petition. However, until otherwise instructed, all future correspondence regarding this application will be mailed solely to the address of record.

The file is being forwarded to Technology Center 2600 for processing the Notice of Appeal, filed October 16, 2003 (certificate of mailing date October 13, 2003) and Appeal Brief, filed July 14, 2003 (certificate of mailing date June 26, 2003).

Telephone inquiries concerning this matter may be directed to the undersigned at (571) 272-3230.

A handwritten signature in cursive script, appearing to read "E. Shirene Willis".

E. Shirene Willis  
Senior Petitions Attorney  
Office of Petitions

cc: MARK D. CHUEY  
BROOKS KUSHMAN P.C.  
1000 TOWN CENTER, 22ND FLOOR  
SOUTHFIELD, MI 48075-1238



**EXHIBIT K**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

BRUCE A. PHILLIPS ET AL.

Group Art Unit: 2665

Examiner: S. Nguyen

Serial No.: 09/203,086

Filed: December 1, 1998

For: SYSTEM AND METHOD FOR INCREASING DISTRIBUTION DISTANCE  
OF XDSL TYPE SIGNALS

Attorney Docket No.: 1554/1556 (USW 0464 PUS)

**STATUS INQUIRY**

Commissioner for Patents  
U.S. Patent & Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Please inform us of the status of the above-identified patent application and as to when we may expect an Office Action from the U.S. Patent and Trademark Office.

Respectfully submitted,

**BRUCE A. PHILLIPS ET AL.**

By: /Jeremy J. Curcuri/  
Jeremy J. Curcuri  
Reg. No. 42,454  
Attorney for Applicants

Date: May 19, 2007

**BROOKS KUSHMAN P.C.**  
1000 Town Center, 22<sup>nd</sup> Floor  
Southfield, MI 48075-1238  
Phone: (248) 358-4400  
Fax: (248) 358-3351

## Electronic Acknowledgement Receipt

|   |  |
|---|--|
| <b>EFS ID:</b>                              | 1792233  |
| <b>Application Number:</b>                  | 09203086   |
| <b>International Application Number:</b>    |  |
| <b>Confirmation Number:</b>                 | 3773   |
| <b>Title of Invention:</b>                  | SYSTEM AND METHOD FOR INCREASING DISTRIBUTION<br>DISTANCE OF XDSL TYPE SIGNALS |
| <b>First Named Inventor/Applicant Name:</b> | BRUCE A. PHILLIPS  |
| <b>Customer Number:</b>                     | 22193  |
| <b>Filer:</b>                               | Jeremy J. Curcuri/Sherry Kelly   |
| <b>Filer Authorized By:</b>                 | Jeremy J. Curcuri  |
| <b>Attorney Docket Number:</b>              | 1554/1556(US)  |
| <b>Receipt Date:</b>                        | 19-MAY-2007  |
| <b>Filing Date:</b>                         | 01-DEC-1998  |
| <b>Time Stamp:</b>                          | 09:10:19   |
| <b>Application Type:</b>                    | Utility  |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description          | File Name          | File Size(Bytes) | Multi Part /.zip | Pages (if appl.) |
|-----------------|-------------------------------|--------------------|------------------|------------------|------------------|
| 1               | Miscellaneous Incoming Letter | status_inquiry.pdf | 33297            | no               | 1                |

**Warnings:**

**Information:****Total Files Size (in bytes):**

33297

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**EXHIBIT L**



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09/203,086

## SYSTEM AND METHOD FOR INCREASING DISTRIBUTION DISTANCE OF XDSDL TYPE SIGNALS

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## Bibliographic Data

|                         |  |                            |   |
|-------------------------|--|----------------------------|---|
| Application Number:     | 09/203,086                                   | Customer Number:           | 83809   |
| Filing or 371 (c) Date: | 12-01-1998                                   | Status:                    | Abandoned -- Failure to Respond to an Office Action |
| Application Type:       | Utility                                      | Status Date:               | 09-30-2003  |
| Examiner Name:          | NGUYEN, STEVEN H.D.                          | Location:                  | ELECTRONIC  |
| Group Art Unit:         | 2665   | Location Date:             | -   |
| Confirmation Number:    | 3773   | Earliest Publication No:   | -   |
| Attorney Docket Number: | 020366-055400US <a href="#">Update</a>       | Earliest Publication Date: | -   |
| Class / Subclass:       | 370/466                                      | Patent Number:             | -   |
| First Named Inventor:   | BRUCE A. PHILLIPS , HIGHLANDS RANCH, CO (US) | Issue Date of Patent:      | -   |

Title of Invention: SYSTEM AND METHOD FOR INCREASING DISTRIBUTION DISTANCE OF XDSDL TYPE SIGNALS

## If you need help:

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## SYSTEM AND METHOD FOR INCREASING DISTRIBUTION DISTANCE OF XDSL TYPE SIGNALS

09/203,066

## Transaction History

## Date Transaction Description

02-24-2009 Change in Power of Attorney (May Include Associate POA)  
 02-20-2009 Correspondence Address Change  
 05-19-2007 Miscellaneous Incoming Letter  
 07-11-2005 IFW TSS Processing by Tech Center Complete  
 12-01-1998 Reference capture on IDS  
 05-02-2000 Oath or Declaration Filed (Including Supplemental)  
 04-17-2000 Information Disclosure Statement (IDS) Filed  
 04-17-2000 Information Disclosure Statement (IDS) Filed  
 11-23-1999 Oath or Declaration Filed (Including Supplemental)  
 04-07-2005 Mail-Petition to Revive Application - Granted  
 10-16-2003 Petition Entered  
 10-02-2003 Mail Abandonment for Failure to Respond to Office Action  
 09-30-2003 Aband. for Failure to Respond to O. A.  
 04-17-2003 Mail Miscellaneous Communication to Applicant  
 04-17-2003 Miscellaneous Communication to Applicant - No Action Count  
 02-20-2003 Mail Notification of Terminal Disclaimer - Accepted  
 02-20-2003 Mail Advisory Action (PTOL - 303)  
 02-19-2003 Advisory Action (PTOL-303)  
 02-06-2003 Notification of Terminal Disclaimer - Accepted  
 02-03-2003 Terminal Disclaimer Filed  
 02-05-2003 Date Forwarded to Examiner  
 02-03-2003 Amendment after Final Rejection  
 12-30-2002 Mail Final Rejection (PTOL - 326)  
 12-30-2002 Final Rejection  
 10-18-2002 Date Forwarded to Examiner  
 08-06-2002 Response after Non-Final Action  
 05-10-2002 Mail Non-Final Rejection  
 05-06-2002 Non-Final Rejection  
 02-22-2002 Date Forwarded to Examiner  
 02-08-2002 Response after Non-Final Action  
 02-12-2002 Case Docketed to Examiner in GAU  
 10-24-2001 Mail Non-Final Rejection  
 10-22-2001 Non-Final Rejection  
 05-22-2001 Case Docketed to Examiner in GAU  
 11-23-1999 Conversion under Rule 45  
 01-25-1999 Transfer Inquiry  
 12-01-1998 Information Disclosure Statement (IDS) Filed  
 12-01-1998 Information Disclosure Statement (IDS) Filed  
 12-15-1998 IFW Scan & PACR Auto Security Review  
 05-17-1999 Preexamination Location Change  
 12-07-1998 Initial Exam Team nn

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